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L8: Entry 5 of 24

File: USPT

Feb 8, 2005

DOCUMENT-IDENTIFIER: US 6854123 B1

TITLE: Method, system, and program for mapping standard application program interfaces (APIs) to user interface APIs

Application Filing Date (1):20000509Brief Summary Text (10):

Component objects are accessed through interfaces. An interface is a strongly-typed group of semantically-related functions, also called "interface member functions." The interface is defined according to its use and behavior. A client system or process calls the interface to access the implementation of an object and requests the object's services. The interface includes member functions that act upon the object. The client maintains a pointer to the interface which is, in actuality, a pointer to an array of pointers to the object's implementations of the interface member functions.

Detailed Description Text (4):

The DOM model is a standard interface used to define the structure of documents, particularly HTML and XML documents. In the DOM specification, the term "document" is used in the broad sense to include the components of a textual document as well as components of an application program. The DOM interface represents the document or application program as a hierarchical arrangement of nodes. All the components of an HTML or XML document, including data as well as program elements, such as the user interface elements, can be expressed as hierarchically arranged nodes. The W3C DOM specifications provide API interfaces to access, change, delete or add nodes to the DOM representation of a document, or application program. The API interfaces specified in the DOM specifications are referred to herein as "W3C API interfaces."

Detailed Description Text (5):

In preferred embodiments, the mixed statement programs 2a, b, c may incorporate the W3C API interfaces of DOM specifications, such as the DOM level 1 Core, including DOM Level 1 HTML, which provides W3C interfaces representing all of the HTML 4.0 elements, DOM Level 2 Core which comprises modifications to DOM Level 1, DOM Level 2 Cascading Style Sheets, etc. Many browsers such as Microsoft Internet Explorer version 5 and Mozilla based browsers, such as Netscape Communicator, implement the W3C DOM Level 1 HTML interface, as well as Cascading Style Sheets. In this way, developers creating mixed statement programs 2a, b, c may utilize the W3C API interfaces as specified in the W3C specifications, such as the "Document Object Model (DOM) Level 1 Specification, Version 1.0" (Oct. 1, 1999) and "Document Object Model (DOM) Level 2 Specification, Version 1.0" (Dec. 10, 1999), which are incorporated herein by reference in their entirety, and which include the DOM Level 1 HTML, DOM Level 2 Core, DOM Level 2 CSS, DOM Level 2 Views and Events, DOM Level 2 HTML, DOM Level 2 Stylesheets, DOM Level 2 CSS, DOM Level 2 Traversal, etc.

Detailed Description Text (24):

The above implementation concerned the general mapping of W3C API interfaces to user interface APIs 12 to manipulate the user interface objects 14 from a Java mixed statement program. Another aspect of the DOM is that it allows a document, or

program or any component in the system to be expressed as a hierarchical relationship of objects that may separately be manipulated. Each element is maintained with attributes of the element. This allows a user to delete, add, or change an element, change its content or add, delete or change an attribute. For instance, the different parts of a document, such as sections, images, chapters, etc., may each be expressed as a DOM element in a hierarchical tree of DOM elements that define the entire document. Further, an HTML page may be expressed in a DOM tree where the elements of the HTML page, including user interface elements and program components, are expressed in a hierarchical relationship. The DOM makes all of the objects in a page, e.g., and HTML or XML page, such as images, forms, and even CSS properties, accessible to an application program. Various W3C API functions are available for manipulating DOM objects arranged in a hierarchical relationship. By manipulating particular DOM objects of an HTML page using W3C API interfaces or their corresponding implementation in a particular web browser or operating system, the user may specifically alter particular sections of the HTML page by manipulating the element(s) without affecting other sections of the HTML page defined in other elements.

Detailed Description Text (25):

Currently, the DOM is widely accepted as a standard for defining components within documents and applications, especially those related to the Internet, such as XML and HTML documents. In fact Microsoft Explorer 5.0 and Mozilla implement HTML using the DOM model and APIs. Further details of expressing document and application components in a DOM tree are described in the DOM specifications incorporated by reference above.

Detailed Description Text (38):

Preferred embodiments described the bridge mapping W3C API interfaces to corresponding interfaces in Mozilla browsers and the Microsoft Internet Explorer 5. However, there may be further implementations of the bridge to provide API for any browser that implements aspects of the W3C DOM standard, including DOM level 1, all of the W3C HTML 4.0, and parts of the DOM level 2, including the CORE, HTML, Events, StyleSheets, and Cascading Style Sheets.

Other Reference Publication (2):

Schneider "XML et DOM", Mar. 1999, version 0.3, pp. 1-38.\*

Other Reference Publication (4):

Cover, "The SGML/XML Web Page", Nov. 1998, p. 1-5.\*

Other Reference Publication (5):

Ossenbruggen, "The Role of XML in Open Hypermedia Systems", 98, p. 1-8.\*

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